

What is claimed is:

- 1 1. A method comprising determining a power savings level for a mobile station  
2 based on an amount of data traffic.
- 1 2. The method of claim 1 further comprising determining the amount of data  
2 traffic as a percentage of traffic activity within a time interval.
- 1 3. The method of claim 1 wherein determining a power savings level comprises  
2 determining a time interval for the mobile station to sleep.
- 1 4. The method of claim 3 wherein determining a time interval for the mobile  
2 station to sleep comprises comparing a desired sleep interval and a required wake-  
3 up time to receive broadcast and multicast packets.
- 1 5. The method of claim 3 wherein the time interval for the mobile station to  
2 sleep is expressed as a number of 802.11 compliant beacon intervals.
- 1 6. The method of claim 5 wherein the method is performed within a beacon  
2 monitor task run in response to an interrupt caused by a Target Beacon  
3 Transmission Times (TBTT) timer.
- 1 7. The method of claim 5 wherein determining a time interval for the mobile  
2 station to sleep comprises comparing a Delivery Traffic Indication Message (DTIM)  
3 count within a received beacon with a time interval associated with the power  
4 saving level.
- 1 8. A method comprising:  
2 determining a desired sleep interval to sleep to save power;

3           determining a broadcast time to wake up to receive packets from an access  
4 point; and  
5           setting a wake-up time based on the desired sleep interval and the broadcast  
6 time.

1    9.     The method of claim 8 wherein determining a desired sleep interval  
2 comprises determining a desired number of beacon intervals to sleep.

1    10.    The method of claim 8 wherein determining a desired sleep interval  
2 comprises determining a desired number of beacon intervals to sleep based, at least  
3 in part, on a volume of data traffic.

1    11.    The method of claim 10 wherein determining a desired sleep interval further  
2 comprises selecting one of a plurality of power savings levels based on the volume  
3 of data traffic.

1    12.    The method of claim 8 wherein determining a broadcast time comprises  
2 examining a Traffic Indication Map (TIM) element within an 802.11 compliant  
3 beacon.

1    13.    The method of claim 8 wherein setting a wake-up time comprises setting the  
2 wake-up time to the end of one desired sleep interval when the broadcast time is  
3 more than two desired sleep intervals in the future.

1    14.    The method of claim 8 wherein setting a wake-up time comprises setting the  
2 wake-up time to the broadcast time when the broadcast time is less than two desired  
3 sleep intervals in the future.

1    15.    An apparatus having a machine-readable medium with instructions stored  
2 thereon that when accessed, result in a machine performing:

3           waking up a mobile station to receive a beacon;  
4           evaluating traffic activity; and  
5           setting a power savings level for the mobile station based on the traffic  
6   activity.

1   16.    The apparatus of claim 15 wherein evaluating traffic activity comprises  
2   determining a percentage of traffic time over a time interval.

1   17.    The apparatus of claim 16 wherein the power savings level may be set  
2   differently each time the traffic activity is evaluated.

1   18.    The apparatus of claim 15 further comprising setting a sleep time associated  
2   the power savings level.

1   19.    The apparatus of claim 15 wherein setting a power savings level comprises  
2   determining a number of beacon intervals for the mobile station to sleep.

1   20.    The apparatus of claim 19 wherein determining a number of beacon intervals  
2   for the mobile station to sleep comprises comparing a desired number of beacon  
3   intervals with a Delivery Traffic Indication Message (DTIM) count.

1   21.    An apparatus configured to communicate in an 802.11 wireless network, and  
2   configured to sleep for a number of beacon intervals based on traffic volume.

1   22.    The apparatus of claim 21 comprising a network interface card.

1   23.    The apparatus of claim 21 comprising a mobile computer.

1   24.    An electronic system comprising:  
2       a plurality of antennas;

3 a radio interface coupled to the plurality of antennas;  
4 a processor coupled to the radio interface; and  
5 a static random access memory with instructions stored thereon that when  
6 accessed, result in the processor performing:  
7 waking up an apparatus to receive a beacon, evaluating traffic activity, and  
8 setting a power savings level for the apparatus based on the traffic activity.

1 25. The electronic system of claim 24 wherein setting a power savings level  
2 comprises determining a time interval for the apparatus to sleep.

1 26. The electronic system of claim 25 wherein determining a time interval for  
2 the apparatus to sleep comprises comparing a desired sleep interval and a required  
3 wake-up time to receive multicast packets.

1 27. The electronic system of claim 25 wherein the time interval for the apparatus  
2 to sleep is expressed as a number of beacon intervals.